

Case 2356

***Alveolina* d'Orbigny, 1826 (Foraminiferida): proposed designation of *Oryzaria boscii* DeFrance in Bronn, 1825 as type species**

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Abstract. The purpose of this application is to stabilise the important foraminiferan generic name *Alveolina* in accord with majority usage, rejecting its treatment as a junior synonym of *Borelis* Montfort, 1808.

1. For more than 150 years *Alveolina* d'Orbigny, 1826, has been among the most widely recognised and stratigraphically useful genera of the Foraminiferida. It is the type genus of the family ALVEOLINIDAE Ehrenberg, 1839 (table opposite p. 20, as 'Alveolinea').

2. In describing the genus, d'Orbigny (1826, p. 306) listed seven species, three being then denoted by *nomina nuda* that were made available in later publications: *A. bulloides* (later the type species of *Bullalveolina* Reichel, 1936); *A. elongata*; and *A. ovoidea* (later the type species of *Ovalveolina* Reichel, 1936). Another new species, *A. Quoii*, was based on accompanying figures (the spelling of this name, dedicated to J. R. C. Quoy, was emended by H. Douvillé (1907, p. 585) to *A. quoyi* when he made the species the type of *Alveolinella* Douvillé, 1907).

3. The remaining species listed by d'Orbigny were *A. melo* (= *Nautilus melo* Fichtel & Moll, 1798, p. 118), *A. boscii* (= *Oryzaria boscii* DeFrance in Bronn, 1825, p. 44), and the new species *A. oblonga*. None was designated as the type species of *Alveolina*. In discussing these species, d'Orbigny said that *Alveolina melo* had also been described as *Clausulus indicator* Montfort, 1808, *Borelis melonoides* Montfort, 1808, *Melonia sphaerica* de Blainville, 1824, and *Melonites sphaeroidea* Lamarck, 1816. *Nautilus melo* Fichtel & Moll is now regarded as the type species of *Borelis* Montfort, 1808, and a neotype has been designated (Rögl & Hansen, 1984, p. 71).

4. In the synonymy of *Alveolina oblonga* d'Orbigny included *Fasciolites* Parkinson, 1811 (p. 158), a genus based on figures and a description, but to which no species were assigned. Galloway (1933, p. 150) stated that d'Orbigny's citation of the figures of *Fasciolites* in the synonymy of *A. oblonga* fixed that species as the type of *Fasciolites* by subsequent monotypy. This interpretation was followed by Reichel (in Loeblich & Tappan, 1964), but was not then and is not now correct. *Fasciolites elliptica* Sowerby, 1840, the first species to be included in *Fasciolites*, became the type by subsequent monotypy. This species was later placed in *Alveolina*. Yabe & Hanzawa (1929, p. 180) transferred *Fasciolites* to subgeneric status, and designated *Alveolina schwageri* Checchia-Rispoli, 1905 (p. 162) as the type of *Borelis* (*Fasciolites*). Thus 3 different species have been cited as the type species of *Fasciolites*, and its continued use can only result in further confusion.

5. In the synonymy of *Alveolina boscii* d'Orbigny noted 'Alvéolite grain de festuque' [sic] Bosc, *Miliolites subulatus* [sic; recte *sabulosus*] Montfort, and *Orizaria* [sic; recte *Oryzaria*] *boscii* Defrance. *Oryzaria* is discussed below. *Miliolites sabulosus* Montfort, 1808 (p. 175; not a *nomen nudum* as stated by Hottinger, 1960b, p. 231) was said by Parker & Jones (1860b, p. 342) to be represented by 'a very bad figure of a fusiform *Alveolina*.' Later (1863, p. 431) they commented that *Alveolina boscii* Defrance (as represented by d'Orbigny's model no. 50) had previously been named *Miliolites sabulosus* by Montfort, and in 1865 (p. 26) Parker, Jones and Brady again observed that *A. sabulosa* had priority over *A. boscii*. Nevertheless, *A. sabulosa* has not been used since that date, whereas *A. boscii* has been widely reported in all the literature referring to the alveolines. Furthermore, despite these early statements of synonymy, the status and identity of *M. sabulosus* are not certainly established. The original figure could equally well represent the milioline *Fabularia*, and Montfort (1808, p. 175) merely stated that a broken specimen showed the interior of his miliolite to have many chamberlets as in the tinopores and the nummulites (the latter are hyaline calcareous perforate foraminifers unrelated to either the miliolines or the alveolines). He added that it was very common at Grignon in the Paris basin, which is also the type locality of *Fabularia discolites* Defrance in Bronn, 1825 (p. 43; the type species, by monotypy, of *Fabularia*), and of its senior synonym, *Nummulites ovatus* de Roissy, 1805. Thus, in the absence of a type specimen, *Miliolites sabulosus* is unrecognisable and we propose the suppression of the name. Even d'Orbigny's (1826) inclusion of *Miliolites 'subulatus* Montfort' [sic] in the synonymy of *Alveolina boscii* does not fix the nature of Montfort's taxon in the absence of any supporting evidence as to its true nature.

6. In proposing his new genus *Alveolina* d'Orbigny noted that some of the included species had been named earlier. Later (1839, pp. 69–70) he elaborated on the nomenclature of the taxon, observing that the oldest-named species had been referred by Fichtel & Moll to *Nautilus*, following the system of Linné and Gmelin. Bosc (1802, 1803, 1816) had observed the many chamberlets and complicated internal structure of his fossils and referred them to the coral genus *Alveolites* Lamarck, 1801. Bosc did not then erect a new genus but clearly stated that he was referring to Lamarck's and that the description should be extended to include species that were fusiform ('grain de festuque') or ovoid ('grain de millet') as well as globose or hemispherical forms.

7. In 1816 Defrance (p. 136) proposed *Alveolites* for a new genus distinct from Lamarck's coral genus (the name of which was spelled by de Blainville as '*Alveolitis*' in the following article). This genus included Bosc's 'Alvéolite grain de festuque' and 'Alvéolite grain de millet' and a new species, *Alveolites larva*, which, as the only included species with an available name, is the type species of *Alveolites* Defrance, by monotypy, even though this was not Defrance's intention. Although not a *nomen nudum* (as had been stated by Hottinger, 1960b, p. 230), *A. larva* is unrecognisable. No other foraminiferans have been referred to *Alveolites*. In 1820 (p. 103) Defrance said that the 'Alvéolite grain de millet' was his *Fabularia* 'discolithe'. Parker & Jones (1861, p. 162) synonymised that species with *Numulites ovatus* de Roissy, 1805, and the latter specific name is the valid name for the type species of the miliolid genus *Fabularia*. The 'Alvéolite grain de festuque' was stated by Defrance (1816) to be the 'discolithe ovoïde' of Fortis and in 1820 he named it in the vernacular as 'Oryzaire-Bosc'. This was later latinised by Defrance in Bronn (1825, p. 31) as *Oryzaria boscii*.

8. D'Orbigny (1826) regarded the various names proposed by Montfort, de

Blainville and Lamarck as unnecessary new names for species described by earlier authors, and thus as invalid. He stated (1839, p. 69): 'Nous avons reconnu ce chaos et nous avons cherché à le débrouiller; alors, tout en recourant au premier nom d'*Alveolites*, auquel nous substituâmes celui d'*Alveolina*, ayant découvert une espèce vivante, nous fîmes justice de tous ces genres inutiles et les indiquâmes seulement comme synonymes dans notre tableau méthodique. . . '.

9. He thus regarded *Alveolina* as a reverse name modification of *Alveolites* (proposed for a fossil coral), since fossil representatives of living genera were often in those days given names formed by substituting *-ites* for the termination of the original name (but see Article 20 of the Code). Nevertheless, d'Orbigny clearly shows that he was proposing *Alveolina* as a replacement name for *Alveolites* Defrance, 1816 (a junior homonym of *Alveolites* Lamarck, 1801). The two genera must therefore have the same type species, *A. larva* Defrance, but to accept this would be to treat *Alveolina* as a *nomen dubium* and this would be absurd. H. Douvillé (1907, p. 585) said 'on peut considérer comme type [of *Alveolina*] *Alv. Boscii* du Calcaire Grossier'. This was followed by Cushman (1917, p. 97 and later) and others, and *Alveolina boscii* (Defrance) has been regarded as the type species of the genus for most of this century.

10. However, an earlier type-species designation for *Alveolina* had been overlooked. Parker & Jones (1860a, p. 182), in discussing the species described by Fichtel & Moll, had stated: 'The oldest specific name on record for *Alveolina* is *A. melo*, which may well pass as the type'. This was accepted as the type designation by Reichel in Loeblich & Tappan, 1964 (see note by R. C. Moore, p. C506 therein), and *Alveolina* was accordingly regarded as a junior objective synonym of *Borelis* Montfort, 1808. The species formerly referred to *Alveolina* were transferred to *Fasciolites* Parkinson (see paragraph 4 above).

11. Few specialists on the alveolinids have agreed with this, which contradicts wide prior usage (e.g. Cushman, 1917, p. 97; Yabe & Hanzawa, 1929, p. 181; Reichel, 1936, 1937; Hottinger, 1960a, 1960b) and is discussed by Reichel in Loeblich & Tappan, 1964, p. C508 (note on *Fasciolites*). Some have continued to use *Alveolina* as a *nomen conservandum*, in the sense of *A. boscii*, even stating that a proposal for conservation would be prepared (e.g. Hottinger, 1973, p. 444; Drobne, 1977, p. 11) although none has been submitted.

12. In contrast, a few authors have accepted the Treatise usage and have not only recognised *Fasciolites* but in one instance (Gaemers, 1978, p. 106) proposed an additional subgenus, *Fasciolites (Microfasciolites)*, with *Alveolina boscii* as type species.

13. Unfortunately, each attempt to stabilise alveolinid nomenclature (those of d'Orbigny, 1826, 1839, of Galloway, 1933, and of Reichel in Loeblich & Tappan, 1964) has only resulted in greater confusion. Action by the Commission using its plenary powers seems necessary to stabilise the nomenclature.

14. The International Commission on Zoological Nomenclature is accordingly asked:

(1) to use its plenary powers:

(a) to set aside all previous designations of type species for *Alveolina* d'Orbigny, 1826, and to designate *Oryzaria boscii* Defrance in Bronn, 1825 as type species;

(b) to suppress the generic names *Fasciolites* Parkinson, 1811 and *Oryzaria*

Defrance in Bronn, 1825 for the purposes of the Principle of Priority but not for those of the Principle of Homonymy;

- (c) to suppress the specific name *sabulosus* Montfort, 1808, as published in the binomen *Miliolites sabulosus*, for the purposes of the Principle of Priority but not for those of the Principle of Homonymy;
- (2) to place on the Official List of Generic Names in Zoology the name *Alveolina* d'Orbigny, 1826 (gender: feminine), type species, by designation under the plenary powers in (1) (a) above, *Oryzaria boscii* Defrance in Bronn, 1825;
- (3) to place on the Official List of Specific Names in Zoology the name *boscii* Defrance in Bronn, 1825, as published in the binomen *Oryzaria boscii* (specific name of the type species of *Alveolina* d'Orbigny, 1826);
- (4) to place on the Official List of Family-group Names in Zoology the name ALVEOLINIDAE Ehrenberg, 1839 (type genus *Alveolina* d'Orbigny, 1826);
- (5) to place on the Official Index of Rejected and Invalid Generic Names in Zoology the names (a) *Fasciolites* Parkinson, 1811, (b) *Oryzaria* Defrance in Bronn, 1825, as suppressed under the plenary powers in (1) (a) above, and (c) *Microfasciolites* Gaemers, 1978, as a junior objective synonym of *Alveolina* d'Orbigny, 1826;
- (6) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *sabulosus* Montfort, 1808, as published in the binomen *Miliolites sabulosus*, and as suppressed under the plenary powers in (1) (c) above.

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